Claims:

1. (Previously Presented) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system, the improvement being that said composition comprises less than about 0.3% by weight of a strong acid and gives a spin bowl compatibility test result of greater than about 90% when propylene glycol methyl ether is used in the spin bowl compatibility test.

2. (Original) The composition of claim 1, said composition further comprising a compound selected from the group consisting of phenolic compounds, carboxylic acids, phosphoric acid, and cyano compounds.

3. (Original) The composition of claim 2, wherein said compound is chemically bonded with said polymer.

4. (Original) The composition of claim 2, wherein said compound is selected from the group consisting of Bisphenol S, Bisphenol A, α-cyano-4-hydroxycinnamic acid, phenol novolaks, and acetic acid.

5. (Original) The composition of claim 1, wherein said composition comprises a compound selected from the group consisting of surfactants, crosslinking agents, and mixtures thereof.

6. (Original) The composition of claim 5, wherein said surfactant is selected from the group consisting of fluorinated surfactants and carbonated surfactants.

7. (Original) The composition of claim 5, wherein said crosslinking agent is selected from the group consisting of aminoplasts and epoxies.

8. (Original) The composition of claim 1, wherein said solvent system includes a solvent selected from the group consisting of PGMEA, PGME, propylene glycol *n*-propyl ether, 2-heptanone, *N*-methylpyrollidinone, ethyl lactate, cyclohexanone, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, and mixtures thereof.

9. (Original) The composition of claim 1, wherein said polymer is selected from the group consisting of acrylic polymers, polyesters, epoxy novolaks, polysaccharides, polyethers, polyimides, and mixtures thereof.

10. (Original) The composition of claim 9, wherein said polymer is a methacrylate.

11. (Original) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system and having a weight ratio of strong acid to weak acid, the improvement being that the weight ratio is from about 0:100 to about 50:50.

12. (Original) The composition of claim 11, said composition further comprising a compound selected from the group consisting of phenolic compounds, carboxylic acids, phosphoric acid, and cyano compounds.

13. (Original) The composition of claim 12, wherein said compound is chemically bonded with said polymer.

14. (Original) The composition of claim 12, wherein said compound is selected from the group consisting of Bisphenol S, Bisphenol A, α-cyano-4-hydroxycinnamic acid, phenol novolaks, and acetic acid.

15. (Original) The composition of claim 11, wherein said composition comprises a compound selected from the group consisting of surfactants, crosslinking agents, and mixtures thereof.

16. (Original) The composition of claim 15, wherein said surfactant is selected from the group consisting of fluorinated surfactants and carbonated surfactants.

17. (Original) The composition of claim 15, wherein said crosslinking agent is selected from the group consisting of aminoplasts and epoxies.

18. (Original) The composition of claim 11, wherein said solvent system includes a solvent selected from the group consisting of PGMEA, PGME, propylene glycol *n*-propyl ether, 2-heptanone, *N*–methylpyrollidinone, ethyl lactate, cyclohexanone, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, and mixtures thereof.

19. (Original) The composition of claim 11, wherein said polymer is selected from the group consisting of acrylic polymers, polyesters, epoxy novolaks, polysaccharides, polyethers, polyimides, and mixtures thereof.

20. (Original) The composition of claim 19, wherein said polymer is a methacrylate.

21. (Original) The composition of claim 11, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

22. (Original) The composition of claim 11, wherein said composition comprises less than about 0.3% by weight of a strong acid.

23. (Currently Amended) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system, the improvement being that said composition comprises a non-polymeric compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid.

24. (Original) The composition of claim 23, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

25. (Original) The composition of claim 23, wherein said composition comprises less than about 0.3% by weight of a strong acid.

26. (Original) The composition of claim 23, said composition having a weight ratio of strong acid to weak acid of from about 0:100 to about 50:50.

27. (Original) The composition of claim 23, wherein said compound is chemically bonded with said polymer.

28. (Previously Presented) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising a polymer dissolved in a solvent system and less than about 0.3% by weight of a strong acid, said composition giving a spin bowl compatibility test result of greater than about 90% when propylene glycol methyl ether is used in the spin bowl compatibility test.

29. (Original) The combination of claim 28, said composition further comprising a compound selected from the group consisting of phenolic compounds, carboxylic acids, phosphoric acid, and cyano compounds.

30. (Original) The combination of claim 29, wherein said compound is chemically bonded with said polymer.

31. (Original) The combination of claim 29, wherein said compound is selected from the group consisting of Bisphenol S, Bisphenol A, α-cyano-4-hydroxycinnamic acid, phenol novolaks, and acetic acid.

32. (Original) The combination of claim 28, wherein said composition comprises a compound selected from the group consisting of surfactants, crosslinking agents, and mixtures thereof.

33. (Original) The combination of claim 28, wherein said polymer is selected from the group consisting of acrylic polymers, polyesters, epoxy novolaks, polysaccharides, polyethers, polyimides, and mixtures thereof.

34. (Original) The combination of claim 33, wherein said polymer is a methacrylate.

35. (Original) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising a polymer dissolved in a solvent system, the weight ratio of strong acid to weak acid in said composition being from about 0:100 to about 50:50.

36. (Original) The combination of claim 35, said composition further comprising a compound selected from the group consisting of phenolic compounds, carboxylic acids, phosphoric acid, and cyano compounds.

37. (Original) The combination of claim 36, wherein said compound is chemically bonded with said polymer.

38. (Original) The combination of claim 36, wherein said compound is selected from the group consisting of Bisphenol S, Bisphenol A, α-cyano-4-hydroxycinnamic acid, phenol novolaks, and acetic acid.

39. (Original) The combination of claim 35, wherein said composition comprises a compound selected from the group consisting of surfactants, crosslinking agents, and mixtures thereof.

40. (Original) The combination of claim 35, wherein said polymer is selected from the group consisting of acrylic polymers, polyesters, epoxy novolaks, polysaccharides, polyethers, polyimides, and mixtures thereof.

41. (Original) The combination of claim 40, wherein said polymer is a methacrylate.

42. (Original) The combination of claim 35, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

43. (Original) The combination of claim 35, wherein said composition comprises less than about 0.3% by weight of a strong acid.

44. (Currently Amended) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising a polymer dissolved in a solvent system and a non-polymeric compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid.

45. (Original) The combination of claim 44, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

46. (Original) The combination of claim 44, wherein said composition comprises less than about 0.3% by weight of a strong acid.

47. (Original) The combination of claim 44, said composition having a weight ratio of strong acid to weak acid of from about 0:100 to about 50:50.

48. (Original) The combination of claim 44, wherein said compound is chemically bonded with said polymer.

49. (Original) A method of forming a precursor structure for use in manufacturing integrated circuits, said method comprising the step of applying a quantity of an anti-reflective composition according to claim 1 to the surface of a substrate to form an anti-reflective layer on said substrate surface.

50. (Original) The method of claim 49, wherein said applying step comprises spincoating said composition on said substrate surface.

51. (Original) The method of claim 49, further including the step of baking said anti-reflective layer after said applying step at a temperature of from about 125-225°C.

52. (Original) The method of claim 51, further including the step of applying a photoresist to said baked anti-reflective layer.

53. (Original) The method of claim 52, furthering including the steps of:

exposing at least a portion of said photoresist layer to activating radiation;

developing said exposed photoresist layer; and

etching said developed photoresist layer.

54. (Original) A method of forming a precursor structure for use in manufacturing integrated circuits, said method comprising the step of applying a quantity of an anti-reflective composition according to claim 11 to the surface of a substrate to form an anti-reflective layer on said substrate surface.

55. (Original) The method of claim 54, further including the step of baking said anti-reflective layer after said applying step at a temperature of from about 125-225°C.

56. (Original) The method of claim 55, further including the step of applying a photoresist to said baked anti-reflective layer.

57. (Original) The method of claim 56, furthering including the steps of:

exposing at least a portion of said photoresist layer to activating radiation;

developing said exposed photoresist layer; and

etching said developed photoresist layer.

58. (Original) A method of forming a precursor structure for use in manufacturing integrated circuits, said method comprising the step of applying a quantity of an anti-reflective composition according to claim 23 to the surface of a substrate to form an anti-reflective layer on said substrate surface.

59. (Original) The method of claim 58, further including the step of baking said anti-reflective layer after said applying step at a temperature of from about 125-225°C.

60. (Original) The method of claim 59, further including the step of applying a photoresist to said baked anti-reflective layer.

61. (Original) The method of claim 60, furthering including the steps of:

exposing at least a portion of said photoresist layer to activating radiation;

developing said exposed photoresist layer; and

etching said developed photoresist layer.

62. (Original) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system, the improvement being that said composition comprises less than about 0.3% by weight of a strong acid and from about 0.02-5% by weight of a weak acid.

63. (Original) The composition of claim 62, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

64. (Original) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising:

a polymer dissolved in a solvent system;

less than about 0.3% by weight of a strong acid; and

from about 0.02-5% by weight of a weak acid.

65. (Original) The composition of claim 64, wherein said composition gives a spin bowl compatibility test result of greater than about 90%.

66. (Original) A method of forming a precursor structure for use in manufacturing integrated circuits, said method comprising the step of applying a quantity of an anti-reflective composition according to claim 62 to the surface of a substrate to form an anti-reflective layer on said substrate surface.

67. (Original) The method of claim 66, further including the step of baking said anti-reflective layer after said applying step at a temperature of from about 125-225°C.

68. (Original) The method of claim 67, further including the step of applying a photoresist to said baked anti-reflective layer.

69. (Original) The method of claim 68, furthering including the steps of:

exposing at least a portion of said photoresist layer to activating radiation;

developing said exposed photoresist layer; and

etching said developed photoresist layer.

70. (New) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system, the improvement being that said composition comprises a compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid, and said composition gives a spin bowl compatibility test result of greater than about 90%.

71. (New) In an anti-reflective coating composition for use during microlithographic processes, said composition comprising a polymer dissolved in a solvent system, the improvement being that said composition comprises a compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid, and said composition has a weight ratio of strong acid to weak acid of from about 0:100 to about 50:50.

72. (New) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising a polymer dissolved in a solvent system and a compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid, said composition giving a spin bowl compatibility test result of greater than about 90%..

73. (New) The combination of a substrate having a surface and a cured protective layer on said substrate surface, said cured protective layer being formed from a composition comprising a polymer dissolved in a solvent system and a compound selected from the group consisting of Bisphenol A and α-cyano-4-hydroxycinnamic acid, said composition having a weight ratio of strong acid to weak acid of from about 0:100 to about 50:50.